

## Abstract

**Please add the following Abstract:**

--Abstract

A process meter for measuring at least one physical process variable of a medium stored in a container or flowing in a line, comprising: a transducer including a sensor arrangement providing measurement signals ( $s_1, s_2$ ), said sensor arrangement having: at least a first sensor providing at least a first measurement signal ( $s_1$ ) in response to the physical process variable being measured, particularly to changes in the process variable, and at least a first temperature sensor mounted in said transducer for locally sensing a first temperature,  $T_1$ , in the transducer, and by means of said at least one temperature sensor, at least a first temperature measurement signal ( $\Theta_1$ ) representing the first temperature,  $T_1$ , in said transducer; and meter electronics which, using at least said first measurement signal ( $s_1$ ) and a first correction value ( $K_1$ ) for the at least first measurement signal ( $s_1$ ), derive at least one measured value ( $X$ ) currently representing the physical variable, wherein: during operation, said meter electronics determine the first correction value ( $K_1$ ) from a temporal variation of the at least first temperature measurement signal ( $\Theta_1$ ) by also taking into account temperature values sensed in the past by means of said first temperature sensor.--